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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/785,030	02/25/2004	Yoshihiro Goto	500.37075CX1	9049
20457	7590	02/25/2005	EXAMINER	
ANTONELLI, TERRY, STOUT & KRAUS, LLP 1300 NORTH SEVENTEENTH STREET SUITE 1800 ARLINGTON, VA 22209-9889				PATEL, KANJIBHAI B
ART UNIT		PAPER NUMBER		
				2625

DATE MAILED: 02/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	10/785,030	GOTO, YOSHIHIRO
	<b>Examiner</b>	<b>Art Unit</b>
	Kanji Patel	2625

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

**A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.**

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) Responsive to communication(s) filed on 25 February 2004.  
 2a) This action is FINAL.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) Claim(s) 1-79 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) 1-56 is/are allowed.  
 6) Claim(s) 56-79 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on 25 February 2004 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>2/25/04</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|  | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Priority***

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Information Disclosure Statement***

2. The information disclosure statement (IDS) submitted on 2/25/04 is being considered by the examiner.

### ***Drawings***

3. Drawings filed on 2/25/04 have been approved by the examiner.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 57-77** are rejected under 35 U.S.C. 103(a) as being unpatentable over Goto et al. (US 5,900,878 -- IDS) in view of Schwartz (US 5,720,291 --- IDS).

**For claim 57**, Goto et al. discloses a method for setting a view point in a predetermined position with respect to an image of an object to be examined formed by stack of a plurality of sectional images or formed from at least one volume image and setting a projection plane for projecting said image in a position in opposition to said

view point so that a projection image of said image is projected (Figures 1, 2, 5, 9),  
wherein

said projection image includes at least a first projection image (at least column 14, lines 36-37) of a first organ or region (figure 2) and a second projection image (at least column 14, lines 38-39) of a second organ or region (figure 2), and

Goto et al shows the claimed invention except for displaying the first projection image more emphatically than the second projection image. Schwartz teaches that it is known to use weight coefficients to display images emphatically as set forth at column 5 lines 45-67. Schwartz further teaches the weight coefficients for tissue and blood flow pixels in the body. It would have been obvious to include the weight coefficients to display images emphatically as taught by Schwartz into the system of Goto et al in order to obtain a smoother, more pleasing appearance to the three dimensional display presentation as shown by Schwartz in column 7, lines 2-5.

**For claims 64 and 71,** see the rejection of claim 57 above.

**For claims 58, 65 and 72,** Schwartz provides the method wherein said emphatic displaying is performed by giving different weighting coefficients (column 5, lines 45-67) to said first projection image and said second projection image respectively.

**For claims 59, 66 and 73,** Goto et al discloses the method wherein said emphatic displaying is performed by making luminance different between said first projection image and said second projection image (column 3, lines 52-63).

**For claims 60, 67 and 74,** Schwartz the method wherein said emphatic displaying is performed by making density different between said first projection image

and said second projection image (column 5 line 58 to column 6 line 18; grayscale or color pixel provides different density value).

**For claims 61, 68 and 75,** Schwartz discloses a method wherein said emphatic displaying is performed by making gradation different between said first projection image and said second projection image (column 5, lines 58-67; grayscale provides gradation).

**For claims 62, 69 and 76,** Schwartz discloses a method wherein said method further comprises a step of displaying information indicating degree of the emphasis adjacently to the emphasized projection image (column 5, lines 36-44).

**For claims 63, 70 and 77,** Schwartz provides a method wherein said method further comprises a step of displaying a not-emphasized projection image and an emphasized projection image or a plurality of differently emphasized projection images adjacently to each other (figure 1).

#### ***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

**Claims 78-79** are rejected under 35 U.S.C. 102(b) as being anticipated by Macovski (US 4,577,152).

**For claim 78-79,** Macovski discloses a projection image forming and displaying method (figure 1), comprising:

displaying (display 30 in figure 1 is used for displaying a projection image 28) a projection image and a distribution curve of weighting (a weighed combiner 39 in figure 1a provides a distribution of weighting) for CT values ( reference is employing NMR or a nuclear magnetic resonance system for projection images but CT images from an Xray CT system can be equally applicable) in said projection image (28);

setting the weighting (39) for a CT value on said distribution curve displayed to a required value; and

displaying by highlighting (column 10, lines 8-12) said CT value weighted.

***Allowable Subject Matter***

6. The following is an examiner's statement of reasons for allowance:

**Claims 1-56** are allowed.

**For independent claim 1**, the prior art on record fails to teach or fairly suggest, singly or in combination for a method setting a view point in a predetermined position with respect to a virtual three-dimensional image of an object to be examined formed by stack of a plurality of sectional images or formed from at least one volume image and setting projection plane for projecting the virtual three-dimensional image from the view point so that the virtual three-dimensional image from the view point is projected onto the projection plane to thereby form and display a projection image, the method comprising, among other things, a reading step of reading out pixel values at intervals of a predetermined distance on a projection line with respect to said virtual three-dimensional image crossed by said projection line which goes from said view point toward said projection plane, a recording step in which with respect to a plurality of pixel

value memories provided respectively corresponding to a plurality of predetermined values different from each other and provided with recording regions for respectively recording pixels constituting an image, when the read-out pixel value fits to one of said predetermined values, the pixel data are recorded in the pixel recording region corresponding to the fitted predetermined value. Independent **claims 16, 41- 42 and 53-54 are representative of claim 1.**

**Other prior art cited**

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Benjamin (US 5,647,018) discloses a method and apparatus for generating images.

Waggener et al. (US 5,307,264) disclose a method and apparatus for computing tomographic scans.

Walters (US 5,414,622) discloses a method and apparatus for back projecting image data into an image matrix location.

Hwaggener et al. (US 5,128,864) disclose a method for computing tomographic scans.

Hu et al. (US 5,430,783) disclose a reconstruction method for helical scanning computed tomography apparatus with multi-row detector array employing overlapping beams.

Reckwerdt et al. (US 5,673,300) disclose a method of registering a radiation treatment plan to a patient.

### Contact Information

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kanji Patel whose telephone number is (703) 305-4011. The examiner can normally be reached on Monday to Thursday from 8:00 a.m. to 6:30 p.m. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta, can be reached on (703) 308-5246. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kanji Patel  
Art Unit 2625  
2/22/05

  
KANJIBHAI PATEL  
PRIMARY EXAMINER